

USSR

UDC 576.853.23(Coxsackie)095.33:599.323.4

KISELEVA, N. V., PETROV, B. V., and PERDYLYYEV, O. M., Ashkhabad Scientific Research Institute of Epidemiology and Hygiene

"Isolation of Coxsackie A Viruses From the Intestine of the House Mouse"

Moscow, Voprosy Virusologii, No 6, 1972, pp 713-716

Abstract: Intestinal suspensions from 90 *Mus musculus* Severtzovi Kaschkar were tested virologically to determine their part in hepatitis foci of the Turkmen SSR. Isolated agent had cytopathic effects on human embryo kidney cells and human fibroblasts, manifested titers of  $10^5$ - $10^6$  TCID<sub>50</sub> with respect to cytopathic activity, were stable in response to ether and chloroform, and were nonagglutinating. Three of four strains isolated, could be neutralized by Coxsackie A9 antiserum. Suckling mice infected with the agent displayed disease symptoms by the 3d day. Pathology was most pronounced in skeletal musculature. Histological findings for these mice and two adult mice not infected experimentally but ones which had come in contact with the former and contracted the disease are described in detail. Complement-fixing antibodies against Coxsackie A<sub>2</sub>, A<sub>3</sub>, A<sub>4</sub>, A<sub>5</sub>, A<sub>6</sub>, A<sub>7</sub>, A<sub>9</sub>, and A<sub>13</sub> viruses were detected in blood serums of 129 mice. One sample contained antibodies to several Coxsackie A viruses. Investigation of the pathogens is continuing.

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PROCESSING DATE--03JUL70

TITLE--THE REACTION OF C, METHYLHYDROXYLAMINE WITH DNA IN SOLUTION AND  
INSIDE THE PHAGE PARTICLES -U-

AUTHOR--SKLYADNEVA, V.E., KISELEVA, N.P., BUCCVSKIY, E.I., TIKHONENKO,  
T.I.

COUNTRY OF INFO--USSR

SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 1 PP 116-17

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HYDROXYLAMINE, DNA, PHAGE, CHEMICAL REACTION MECHANISM,  
CYTOSINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1978/C566

SJEF.NC--UR/C463/70/OC4/001/0116/0117

CIRC ACCESSION AC--AP0045590

19  
5  
24

Acc. Nr:

AP0045590

Ref. Code: UR 0463

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 1,  
pp 116-117

THE REACTION OF O-METHYLHYDROXYLAMINE WITH DNA IN SOLUTION AND  
INSIDE THE PHAGE PARTICLES

Sklyadneva, V. B.; Kiseleva, N. P.; Budovskiy, E. I.;

Tikhonenko, T. I.  
Institute of Virology, Academy of Medical Sciences,  
and Institute for Chemistry of Natural Products,  
Academy of Sciences, USSR, Moscow

It was shown that the cytosine nuclei in native DNA regions practically did not react with O-methylhydroxylamine (MHA). At the same time the cytosine nuclei of denatured DNA regions did react with MHA, the rate of the last reaction being of the same order as that for cytidine. The correlation was shown between the degrees of the DNA denaturation and modification of the cytosine residues. During the reaction of

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MHA with S<sub>d</sub> phage (1 M MHA, pH 5.0, 32°, 150 hours) only 16—18 per cent of cytosine residues were modified. The data confirm the hypothesis concerning the specific conformation of a part of the intraphage DNA. It was shown that a complicated dependence existed between the degree of phage DNA modification and the stability of virions. Such dependence is supposed to be due to formation of an intermediate products of cytosine nuclei modification which give covalent cross-linkages between head protein and intraphage DNA.

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UDC 541.49:535.343:546.92

GAVRILOVA, I. V., GEL'FMAN, M. I., IVANNIKOVA, N. V., KISELEVA, N. V.,  
RAZUMOVSKIY, V. V., Leningrad Electrotechnical Communications Institute  
imeni M. A. Bonch-Bruyevich

"Problem of the Trans-effect of Triphenylphosphite and Triphenylstibine"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol XVIII, No 1, 1973, pp 194-199

Abstract: The infrared spectra ( $500-200\text{ cm}^{-1}$ ) of cation complexes of platinum trans- $[\text{Pt}(\text{NH}_3)_2\text{LCl}]\text{NO}_3$  ( $\text{L} = \text{Ph}_3\text{P}, \text{Ph}_3\text{Sb}$ ) were measured. The ionization constants were found for the corresponding aquoions. A study was made of the thermodynamic stability of  $[\text{Pt}(\text{NH}_3)_2(\text{Ph}_3\text{P})\text{Cl}]^+$  and  $[\text{Pt}(\text{NH}_3)_3\text{Ph}_3\text{P}]^{2+}$  in aqueous solutions. Both the  $\sigma$ -donor and  $\pi$ -acceptor capacity decrease in the order  $\text{Ph}_3 > \text{Ph}_3\text{Sb}$ . Both trends are exhibited to approximately the same degree for each of the ligands.

The constants for the compared complexes were as follows:

Trans- $[\text{Pt}(\text{NH}_3)_2(\text{Ph}_3\text{P})\text{H}_2\text{O}]^{2+}$   $pK_a = 5.92$ ; trans- $[\text{Pt}(\text{NH}_3)_2(\text{Ph}_3\text{P})\text{Cl}]^+ pK_{\text{Cl}} = 3.65$

$[\text{Pt}(\text{NH}_3)_3\text{H}_2\text{O}]^{2+} pK_a = 5.50$ ;

$[\text{Pt}(\text{NH}_3)_3\text{Cl}]^+ pK_{\text{Cl}} = 3.60$

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GAVRILOVA, I. V., et al., Zhurnal Neorganicheskoy Khimii, Vol XVIII, No 1, 1973, pp 194-199

A comparison of the thermodynamic characteristics with the spectroscopic characteristics shows that the frequency  $\nu_{\text{Pt-Cl}}$  is primarily determined by the  $\sigma$ -donor properties of the ligand in the trans-position.

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1/2 007 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ALKYD LINCLEUM BASED ON CAPROLACTAM BY PRODUCTS -U-

AUTHOR--(04)-GLNCHARKO, V.M., KISELEVA, R.A., TORBINSKIY, V.V., KONSHIN,  
N.P.

COUNTRY OF INFO--USSR

SOURCE--STCIT. MATER. 1970, (3), 19-20

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CONSTRUCTION MATERIAL, CAPROLACTAM, ALKYD RESIN, INDUSTRIAL  
BYPRODUCT, ADIPIC ACID, SUCCINIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1245

STEP NO--UR/0226/70/000/003/0019/0020

CIRC ACCESSION NO--AP0128641

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128661

ABSTRACT/EXTRACT--(U) CP-O- ABSTRACT. CAPROLACTAM BY PRODUCTS CONTG. ADIPIC, SUCCINIC, AND GLUTARIC ACIDS WERE ACIDIFIED WITH H SUB2 SO SUB4 TO PH 3, THE ORG. LAYER WAS SEPD. FROM THE AQ. SOLN., AND ALLOWED TO REACT WITH GLYCEROL IN THE PRESENCE OF KOH TO GIVE A DARK BROWN, ALKYD RESIN USED AS A BINDER FOR LINOLEUM.

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Miscellaneous

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UDC (083.74) 669.14

VINOGRAD, M. I., KISELEVA, S. A., PAVPEROVA, I. A., APOLOVNIKOVA, L. G.,  
KOLYASNIKOVA, R. I. and BUSHINA, E. G.

"New Standard for Metallographic Determination of Nonmetallic Inclusions  
in Steel"

Moscow, Standarty i kachestvo, No 2, Feb 72, pp 28-30

Abstract: Described is the newly announced GOST 1778-70 for the metallographic determination of impurities in metals replacing GOST 1778-62 which, in addition to other drawbacks, was inadequate to determine reliably the difference in the degree of contamination between individual heats. The need for the new standard has also been prompted by new steelmaking methods and high-purity requirements on top-grade metals. Compared to similar foreign standards, the new GOST 1778-70 features the following advantages: a scale providing strict classification of inclusions by composition and covering a wider variety, including nitrides; a  $\times 200$  magnification permitting more accurate rating of impurities in pure metal than the "IK" scale in the American ASTM E-45-63; an examination area of sections for the "Sh" method adopted as  $400 \pm 50 \text{ mm}^2$  (the same area in ASTM E-45-63 is only  $200 \text{ mm}^2$ ; the standard includes measuring and calculation systems (not available on foreign standards) some of which are suitable for determining impurities in both formed and cast metals;

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VINOGRAD, M. I., et al, Standarty i kachestvo, No 2, Feb 72, pp 28-30

detailed patterns for cutting test pieces for the greatest majority of metallurgical items (only a few are available on foreign standards). 2 tables, 6 bibliographic references)

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UDC 669.14.018.29:669.137

VINOGRAD, M. I., KISELEVA, S. A., FILIPPICHEVA, M. M., and PAVTEROVA, I. A.,  
TsNIIChM, Central Scientific Research Institute of Ferrous Metallurgy (men)  
I. P. Bardin

"Non-Metallic Inclusions in ShKh15 Steel Remelted by Different Methods"

Moscow, Stal', No 10, Oct 70, pp 935-938

Translation: A comparative investigation was made of impurities in open electric melted ShKh15 steel and in three refining remelts: electric slag remelt (mass production, most advanced process, data from 1962 and later), vacuum arc remelt, and electron-arc remelt (experimental melting). Non-metallic inclusions of various types were used. The inclusions were estimated according to four methods: the COST 861-60 scale, the GOST/TsNIIChM 235-60 scale, calculation of the dirty fields of vision (volumetric content, TsNIIChM method), and using a quantitative television microscope with a magnification of 1273. The first two methods of estimating the remelted metal, which possesses only insignificant quantities of small inclusions, are not demonstrative. Considerable improvement in the quality of metal was noted in all types of remelting and no remelting method was demonstrably better than the other. Double remelting (electric slag and vacuum arc remelting, electric slag and electron-arc remelting) resulted in the highest purity.

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1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--HARDENING PROCESS AND THE ELECTRIC INSULATING PROPERTIES OF  
THERMOSETTING PLASTICS -U-  
AUTHOR-(03)-KISELEVA, V.A., SOKOLOV, A.D., KANAVETS, I.F.  
COUNTRY OF INFO--USSR  
SOURCE--PLAST. MASSY 1970, (2), 35-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS, CHEMISTRY  
TOPIC TAGS--HARDNESS, CHEMICAL REACTION KINETICS, ELECTRIC INSULATION,  
PHYSICAL CHEMISTRY PROPERTY, DIELECTRIC PROPERTY, THERMOSETTING  
MATERIAL, PLASTIC/(U)K21 22 PHENOIC PLASTIC, (U)K18 2 PHENOIC PLASTIC,  
(U)K211 3 PHENOIC PLASTIC  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1992/1706 STEP NO--UR/0191/70/000/002/0035/0039  
CIRC ACCESSION NO--AP0112700  
UNCLASSIFIED

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112700

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HARDENING KINETICS OF 3 PHENOLIC PLASTICS (1), K-21-22, K-18-2, AND K-211-3, AND THE EFFECTS OF PHYSIOCHEM. FACTORS ON THE INSULATING PROPERTIES OF PLASTIC ARTICLES WERE STUDIED. THE DIELEC. PROPERTIES OF 1 DETERIORATED DURING HARDENING IN A MOLD (I.E., THE DIELEC. LOSS FACTOR INCREASED, WHEREAS THE SP. BULK AND SURFACE RESISTANCES CORRESPONDINGLY DECREASED). PRELIMINARY DRYING OF MOLDING MATERIALS WAS USEFUL ONLY WHEN THEIR MOISTURE CONTENT WAS LARGER THAN 2PERCENT, OTHERWISE THE PHYSIOCOMECH. PROPERTIES DETERIORATED. THREE INDEPENDENT METHOODS (KANAVETS PLASTOMETER, CHANGES IN THE EXTRACTANTS CONTENT, AND CHANGES IN THE ELEC. CONST.) SUGGESTED THE MOST EFFECTIVE HARDENING PROCEDURE, VIZ., HARDENING IN A MOLD SHOULD TAKE ONLY AS LONG AS IS REQUIRED FOR EACH MATERIAL TO ATTAIN A CERTIAN SHEAR STRESS, WHILE FURTHER HARDENING SHOULD TAKE PLACE OUT OF THE MOLE (WHICH ENSURES INCREASED HARDENING OF THE BINDER AND REMOVAL OF A SIGNIFICANT PORTION OF THE VOLATILE COMPS.).

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Acc. Nr:

AP0037228

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Ref. Code: UR 0391

PRIMARY SOURCE: Gigiyena, Truda i Professional'nyye  
Zabolevaniya, 1970, Nr 2, pp 14-17

HYPOTHALAMIC NEUROSECRETION AND THE STATE OF SUPRARENALS  
IN DOGS EXPOSED TO VIBRATION

Kiseleva, V. I.; Gul'yants, E. S.; Ellanskiy, Yu. G.;  
Gavrilova, T. M.

Summary

The response of hypothalamo-hypophysial-adrenal system to the effect of whole-body vibration (with frequency of 25 per/sec, vertical amplitude of 0.30 mm and horizontal one — of 0.13—0.14 mm) applied daily for one hour over different time-intervals (3, 10, 20, 50 and 90 days) was studied in 15 dogs through tracing neurosecretory material in the hypothalamus and micrometry of neurons, as well as by analyzing histochemically lipoids, ascorbic acid and chromophil elements in the adrenal glands. Vibration was found to produce after different time-intervals qualitatively dissimilar shifts in the hypothalamic neurosecretion function. Alternation of a stronger and weaker functional activity of neurons reflects the development of a phasic state. Final adaptation of hypothalamic neurosecretion to test conditions takes place by the 90th day of the observation. By this time the activity of the system under study proceeds at a higher functional level.

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REEL/FRAME  
19730152

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UDC 613.644+612.014.45]:[812.325.4.015+612.45

KISSILEVA, V. I., GUL'YANTS, E. S., ELLANSKIY, Yu. G., and GAVRILOVA, T. M.,  
Rostov-on-Don Medical Institute

"Hypothalamic Neurosecretion and the State of the Adrenals in Dogs Exposed to  
Vibration"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 2, 1976, pp 14-17

Abstract: Dogs were exposed to general vibration (25 Hz) for one hour daily for 3-90 days. Shifts in hypothalamus-hypophysis neurosecretion were of a phase character. The initial phase was marked by intense synthesis and accumulation of neurosecretions in the neurohypophysis. After the third day, the synthesis of neurosecretory material in the supraoptical and paraventricular nuclei in the anterior hypothalamus was inhibited, possibly due to partial or complete destruction of the tigrroid substance. A weakening of functional activity was noted, accompanied by degenerative changes in the neurons and decrease in the amount of neurosecretion at the sites of transport and accumulation. These changes became more intense between the 10th and 50th days. In the final phase, hypothalamic-hypophyseal function increased, reflecting adaptation of the neurosecretory system

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KISELEVA, V. I., et al, Gigiyena Truda i Professional'nyye Zabolevaniya, No 2, 1970, pp 14-17

to vibration. The cortical substance became increasingly attenuated as the experiment proceeded. This and other morphological shifts were indicative of a state of stimulation, which was more or less synchronized with the functional activity of the hypothalamus-hypophysis.

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UDC 576.851.315.038.345.5

YAGOVKIN, E. A., DOMARADSKIY, I. V., KISELEVA, V. I., and LOBANOV, V. V.,  
Rostov-on-Don Antiplague Institute

"Isolation of a Cholera Vibrio Lipopolysaccharide and Some of Its Biological Properties"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972,  
pp 47-52

Abstract: A purified lipopolysaccharide extracted from strain 2913 of the El Tor vibrio, Ogawa serotype, was examined as a possible component of a chemical vaccine against cholera. A modification of Westphal's method was used to obtain the lipopolysaccharide. The yield of the purified preparation was 2% of the dry bacterial mass. It contained 2.67% nitrogen, 1.3% phosphorus, 1.3% protein, 51.7% carbohydrates, and 0.4% nucleic acids. The lipid component was determined qualitatively by staining the electrophoregrams with Sudan black. Ouchterlony's gel precipitation reaction and immunoelectrophoresis in agar gel revealed two precipitation bands of thermostable antigens. The preparation had low toxicity for mice and moderate pyrogenicity for rabbits. It exhibited preventive properties in a test of active protection of mice. Parenteral immunization of rabbits with lipopolysaccharide resulted in the formation of vibriocidal antibodies in high titers.

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1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ELECTRODEPOSITION OF TIN FROM CHLORIDE FLUORIDE AND SULFATE  
FLUORIDE ELECTROLYTES -U-  
AUTHOR-(02)-BOBROVSKIY, L.K., KISELEVA, V.L.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 88-92  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--ELECTRODEPOSITION, TIN CHLORIDE, FLUORIDE, SULFATE,  
ELECTROLYTE, TIN PLATING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/1389 STEP NO--UR/0153/70/013/001/0088/0092  
CIRC ACCESSION NO--AT0120182

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70  
 CIRC ACCESSION NO--AT0120182  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CATHODIC POLARIZATION IS MARKEDLY INCREASED DURING THE ELECTRODEPOSITION OF SN FROM BATHS CONTG. EITHER SNCL SUB2.2H SUB2 0 50 AND NAF 60 G-L., OR SNSO SUB4 45 AND NAF 50 G-L., BY THE PRESENCE OF 2 G-L. OF THE FOLLOWING ADDITIVES: OS-20 (POLYETHYLENE GLYCOL ETHERS OF HIGHER FATTY ALCS.), OP-7 (POLYETHYLENE GLYCOL ETHERS OF ALKYLPHENOLS), OR OP-10 (POLYETHYLENE GLYCOL ETHERS OF DIALKYLPHENOLS), AND LESS SO IN THE PRESENCE OF 2 G-L. OF STEAROX-6 (POLYETHYLENE GLYCOL ESTERS OF STEARIC ACID). WITH THE 1ST 3, DENSE, FINELY CRYST., SILVERY WHITE DEPOSITS ARE FORMED, WHILE WITH THE LAST THE SURFACE IS COMPACT, DARK, AND NODULAR. AT LOW ADDITIVE CONCNS. (0.1 G-L.), DENDRITES ARE FORMED. ADDN. OF SMALLER THAN 30 G-L. HCL OR H SUB2 SO SUB4 TO THE ELECTROLYTE PERMITS INCREASING THE C.D. TO 2 A-DM PRIME2 AT 20DEGREES, AND TO 3 A-DM PRIME2 AT 35DEGREES. NAOL (20-40 G-L.) CAN BE ADDED TO THE CHLORIDE ELECTROLYTE. CURRENT YIELD IS 90-100PERCENT, AND DEPOSITS 30 MU THICK CAN BE OBTAINED.  
 FACILITY: IVANOV. KHIM. TEKHNOLOG. INST., IVANOVO, USSR.

UNCLASSIFIED

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UDC 621.357.7:669.738.7(088.8)

KISELEVA, V. L., and MURAV'YEVA, L. M., Ivanovo Chemical Technology Institute

"The Method of Electrolytic Cadmium Plating"

USSR Author's Certificate No 324302, Filed 17 Nov 69, Published 7 Mar 72 (from Referativnyy Zhurnal -- Khimiya, Svochnyy Tom, No 23(II), 1972, Abstract No 231251)

Translation: A method of the electrolytic cadmium plating is patented. It differs from other methods by the presence of syntanol DS-10 in it. The latter facilitates the formation of plated layer consisting of small crystals and increases the dispersion quality of electrolyte. The electrolytic plating is conducted at pH 2-3,  $D_c$  0.3-13 a/dm<sup>2</sup>, and 18-25°C, with the electrolyte containing  $CdSO_4$  0.12-0.15,  $(NH_4)_2SO_4$  0.9-0.8,  $H_3BO_3$  0.3-0.4 mole/liter, and syntanol 4.0-8.0 g/liter.

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1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--ABSORPTION SPECTRA AND HYDROLYTIC STABILITY OF NITROSYLCHLORIDE  
TETRAAMMINEPLATINUM II COMPLEXES -U-  
AUTHOR--(02)-STETSENKO, A.I., KISELEVA, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NEORG. KHIM. 1970, 15(5), 1322-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ABSORPTION SPECTRUM, PLATINUM COMPLEX, AMMONIA, NITROSYL  
CHLORIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3008/0941 STEP NO--UR/0078/70/015/005/1322/1327  
CIRC ACCESSION NO--AP0137969  
UNCLASSIFIED

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PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137969

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ABSORPTION MAX. AT 710 NM WERE OBSERVED FOR HClO SUB4 SOLNS. OF (PH(NH SUB3) SUB4 \*NOCL))CL SUB2, (PT(RNH SUB2) SUB4 (NOCL))CL SUB2 AND CIS OR TRANS (PT(NH SUB3) SUB2 (TNH SUB2 )NOCL)) CL SUB2 (R EQUALS ME OR ET). THE POSITION OF THE MAX. DOES NOT DEPEND ON GEOMETRIC CONFIGURATION OF THESE COMPODS. BUT ITS INTENSITY INCREASED WITH COMPLEX CONC. THE INTENSITY OF THE AMX. AT 710 NM CORRESPONDS TO THE EQUIL. CONC. OF THESE COMPLEXES. IN ACIDIC MEDIA, THE COMPLEXES EXIST IN HYDROLYTIC EQUIL. WITH PT, TETRAAMINE, HNO SUB2, H PRIME POSITIVE, AND CL PRIME NEGATIVE. RESISTANCE TO HYDROLYSIS INCREASES WITH THE COMPLEXES IN THE ORDER: (PT(RNH SUB2) SUB4 (NOCL)) PRIME2 POSITIVE SMALLER THAN (PT(NH SUB3) SUB4(NOCL)) PRIME2 POSITIVE SMALLER THAN (PT(EN) SUB2 NEGATIVE (NOCL)) PRIME2 POSITIVE. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

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Acc. Nr:

A70050274

Abstracting Service:

CHEMICAL ABST. 5/70

Ref. Code:

UR0020

104556p Properties and hydrolytic stability of platinum-nitrosoacidotetraamine complexes. Stetsenko, A. I.; Kiseleva, V. M.; Tikhonova, L. S. (Leningrad. Tekhnol. Inst. im. Lenso-veta, Leningrad, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190 (2), 363-5 [Chem] (Russ). The title compds. hydrolyze at  $20 \pm 1^\circ$  according to the following equation:  $[\text{PtL}_4(\text{NO})\text{X}]^{2+} + \text{H}_2\text{O} \rightleftharpoons [\text{PtL}_4]^{2+} + \text{HNO}_2 + \text{H}^+ + \text{X}^-$ , where  $\text{X} = \text{Cl}^+$ ,  $\text{HSO}_4^-$ , and  $\text{NO}_2^-$  and  $\text{L}_4 = (\text{en})_2$ ,  $(\text{NH}_3)_4$ ,  $(\text{MeNH}_2)_4$ ,  $(\text{MeNH}_2)_2(\text{NH}_3)_2$ . The equil. was not greatly affected by the change of  $\text{L}_4$  groups except the  $(\text{en})_2$  complex had an equil. const.  $1/10$  those of the other complexes. The anions had a great effect on the stability:  $[\text{Pt}(\text{en})_2(\text{NO})\text{Cl}]^{2+}$  ( $K = 5.4 \times 10^{-5}$ )  $>$   $[\text{Pt}(\text{NH}_3)_4(\text{NO})\text{Cl}]^{2+}$  ( $K = 3.4 \times 10^{-5}$ )  $>$   $[\text{Pt}(\text{NH}_3)_4(\text{NO})\text{HSO}_4]^{2+}$  ( $K = 1.7 \times 10^{-5}$ )  $>$   $[\text{Pt}(\text{NH}_3)_4(\text{NO})\text{NO}_2]^{2+}$  ( $K = 1.0 \times 10^{-5}$ ). The electron absorption max. of the different compd. are given.

P. L. Maxfield

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SARATIKOV, A. S., YAVOROVSKAYA, V. YE., PRISHCHEP, T. P., BLAGERMAN, S. K.,  
KISELEVA, V. N., IL'INSKIY, N. N., and GICHEVA, T. A., Chair of Pharmacology,  
Tomsk Medical Institute, Tomsk, and Chair of Microbiology, Novosibirsk  
Medical Institute, Novosibirsk

"The Antivirus Effect of Some Pyrazolone Derivatives in a Cell Culture in Vitro"

Moscow, Farmakologiya i Toksikologiya, Vol 36, No 1, Jan/Feb 73, pp 67-73

Abstract: In experiments carried out with human fibroblast cell cultures, butadion, stearic acid antipyrylamide, and p-aminobenzoic acid N-methyl-N-antipyrylamide had an antivirus effect on the Cocksackie A13 virus with which the cell culture was infected. This effect was due to the formation by the culture cells of an inhibitor which was not identical with interferon, because it was inactivated at pH 2.2. The pyrazolone derivatives studied stimulated the functional activity of the culture cells and did not damage their nuclear structures. These derivatives had no bactericidal effect on hemolytic streptococci. However, the culture liquid containing the inhibitor had a bacteriostatic effect on these streptococci. Hemolytic streptococci are often present together with Cocksackie virus A 13 in patients with rheumatic fever, particularly in the acute stage of this disease.

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UDC 543.42

KISELEVA, YE. D., KHASANOVZ, V. M., SEMENOVSKAYA, Y. D., and CHMUTOV, Institute of Physical Chemistry, USSR Academy of Sciences, Moscow

"An Infrared-Spectroscopic Study of the Thermal Stability of the Anionite VP-1 AP"

Moscow, Zhurnal Fizicheskoy Khimii, Vol XLV, No 11, Nov 71, pp 2862-2866

Abstract: Vinylpyridine anionites, on account of their chemical and thermal stability, have become widely used in the separation of anions in acid solutions at high temperatures. With heating in water or in alkali solutions, however, these anionites darken and exhibit reduced ion-exchange capacity. No data have been published which might explain this behavior as a result of structural changes. Experiments conducted by the authors showed that heating VP-1 AP in water produces hydroxypyridines and leads to oxidation of the  $\text{CH}_3$ -substitutes of the ring, with formation of aldehydes and carboxyl groups. In the case of thermal treatment in alkaline solutions, oxidation of the  $\text{CH}_3$ -substitutes similarly appears, but accompanied by formation of the essentially stable form of pyridines, and this, in turn, leads to sharp reduction of ion-exchange capacity. However, restoration of ion-exchange capacity is possible through protonizing the oxygen atoms of the pyridines, to form hydroxypyridines. Graphic and tabular data are included in the paper.

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1/2 020  
UNCLASSIFIED  
TITLE--ELECTRON PARAMAGNETIC RESONANCE STUDY OF CATION EXCHANGERS --U--  
PROCESSING DATE--04DEC70  
AUTHOR--(04)--KARPUKHINA, T.A., KISELEVA, YE.D., CHMUTOV, K.V., GLAZUNOV,  
M.P.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1003-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS  
TOPIC TAGS--ION EXCHANGE RESIN, FORMALDEHYDE, ANTHRACENE, ORGANIC AZOLE  
COMPOUND, PHENANTHRENE, GAMMA RADIATION, ELECTRON PARAMAGNETIC  
RESONANCE, PHOTOLYSIS, CONJUGATE BOND SYSTEM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/0777  
STEP NO--UR/0076/70/044/004/1003/1007  
CIRC ACCESSION NO--AP0136214  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136214

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE REACTION OF HCHO WITH ANTHRACENE, PHENANTHRENE, CARBAZOLE, OR ACENAPHTHENE, FOLLOWED BY SULFONATION GAVE ION EXCHANGE RESINS CONTG. LARGE CONJUGATED SYSTEMS. THESE RESINS WERE VERY STABLE TOWARDS GAMMA IRRADN. EPR SPECTRA OF THE RESINS AND THEIR PHOTODEGRADATION PRODUCTS ARE DISCUSSED.

FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR

K  
Radiation Chemistry

UDC 541.5

KISELEVA, YE. D., CHEMUTOV, K. V., and KULIGINA, N. V., Institute of Physical Chemistry, Academy of Sciences USSR Moscow

"Mechanism of the Action of Radiation on the Cation Exchanger KU-2"  
Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 476-481

Abstract: The effects of irradiation with gamma-rays on the cation-exchange resin KU-2 were studied. KU-2 is a sulfonated styrene-divinylbenzene copolymer. The resin was irradiated in the  $H^+$ ,  $Fe^{3+}$ ,  $Ce^{4+}$ , and  $Cu^{++}$  forms with doses in the  $0.3 \times 10^9$  -  $2.1 \times 10^9$  rad range. Irradiation of the resin in the dry state with increasing doses resulted in increased splitting-off of ion-exchange groups, while the mass of the resin, its exchange capacity, and its degree of swelling decreased. Radiation-chemical decomposition was greater in the presence of  $O_2$  than in vacuo. Presence of  $Fe^{3+}$ ,  $Ce^{4+}$ , and  $Cu^{++}$  as well as that of  $Na^+$  in experiments in which irradiation of Na KU-2 with accelerated electrons was carried out protected the resin' decomposition was reduced as compared with that on irradiation of KU-2 in its  $H^+$  form. It has been established in earlier work that  $Fe^{3+}$  and  $Cu^{++}$  exert a protective effect on KU-2 even in the  
1/2

USSR

KISELEVA, YE. D., et al., Zhurnal Fizicheskoy Khimii, Vol 4,,  
No 2, Feb 70, pp 476-481

presence of  $H_2O$  because they act as electron acceptors during irradiation. During irradiation in the dry state in experiments carried out in this instance, protective action was exerted by the metal cations by reason of a cage effect which prevented detachment of  $SO_3$  - metal cation groups, while the smaller  $SO_3H$  groups of KU-2 in the  $H^+$  form were detached. With increasing degrees of filling of the resin with  $Cu^{++}$ , the protective effect of  $Cu^{++}$  increased. On irradiation of KU-2 containing  $H_2O$ , the formation of  $H_2SO_4$  and loss of exchange capacity by the resin increased up to a certain  $H_2O$  content lower than that required for complete swelling and then remained constant at higher  $H_2O$  amounts. Evidently only molecules of the hydrate film adjacent to the ion-exchanger surface promoted decomposition under the effect of radiation.

2/2

- 90 -

1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--MECHANISM OF THE ACTION OF IONIZING RADIATION ON THE ANION  
EXCHANGER AV-17 -U-  
AUTHOR-(03)-KISELEVA, YE.D., CHMUTOV, K.V., KULIGINA, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 472-5  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--IONIZING RADIATION, GAMMA RADIATION, AMINE, ION EXCHANGE  
RESIN, HYDROGEN BONDING, MOLECULAR STRUCTURE, CHEMICAL REACTION  
MECHANISM, WATER, METHYLENE/(U)AV17 ION EXCHANGE RESIN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1995/1398 STEP NO--UR/0076/70/D44/002/0472/0475  
CIRC ACCESSION NO--AP0116845  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116845

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF GAMMA RADIATION ON SAMPLES OF AV-17 ANION EXCHANGER IN THE NO SUB3 PRIME NEGATIVE FORM. THE SAMPLES WERE IRRADIATED AT REDUCED PRESSURE (10 PRIME NEGATIVES-10 PRIME NEGATIVE4 TORR), IN THE PRESENCE OF AIR O, EITHER DRY OR IN THE PRESENCE OF DIFFERENT AMTS. OF H SUB2 O. WHEN IRRADIATING DRY SAMPLES WITH A DOSE OF SIMILAR TO 10 PRIME9 RAD, SECONDARY AND TERTIARY AMINES ARE FORMED. THIS INDICATES THAT THE ION EXCHANGE GROUPS ARE AFFECTED. IN THE PRESENCE OF H SUB2 O, THE TRIMETHYLAMINE (1) YIELD DEPENDS ON THE H SUB2 O CONCN. THE INCREASE IN THE YIELD OF I IN THE PRESENCE OF SMALL AMTS. OF H SUB2 O MAY BE EXPLAINED ON THE BASIS THAT THESE SMALL AMTS. OF H SUB2 O STILL DO NOT FACILITATE THE PASSAGE OF ELECTRONS VIA THE METHYLENE BRIDGE. DUE TO H BOND FORMATION, H SUB2 O LEADS TO A DECREASE IN THE ENERGY OF THE C-N BOND SO THAT THE PROBABILITY OF ITS SPLITTING IS INCREASED. THE H SUB2 O SWELLED ANION EXCHANGER MAY BE CONSIDERED AS A NEW MOL. STRUCTURE WITH A DIFFERENT DISTRIBUTION OF ENERGY. ELECTRONS ARE SHIFTED TO POLAR ANION EXCHANGING GROUPS BY MEANS OF H BONDS OF THE HYDRATION SHELL OF H SUB2 O. FACILITY: INST. FIZ. KHM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 541.15

KISELEVA, YE. D., CIMUTOV, K. V., and KULIGINA, N. V., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Mechanism of the Action of Ionizing Radiation on the Anion Exchanger AV-17"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 472-475

Abstract : The Action of gamma-radiation on the anion-exchange resin AV-17 in its  $\text{NO}_3^-$  form was studied. This resin is a styrene-divinylbenzene copolymer that contains quaternary ammonium groups. Its anion-exchange groups have the structure  $\text{CH}_2\text{N}^+\text{Me}_3$ . The resin was irradiated in a dry state in vacuo, in the presence of  $\text{O}_2$ , and in the presence of various amounts of  $\text{H}_2\text{O}$  taken up by the resin on swelling. On irradiation in the dry state in vacuo or in the presence of  $\text{O}_2$  with doses of  $0.3 \times 10^9$  to  $1 \times 10^9$  rad, secondary and tertiary amines formed as a result of decomposition of the exchange groups. On irradiation of the resin containing  $\text{H}_2\text{O}$  with a dose of  $3 \times 10^8$  rad, the amount of  $\text{NMe}_3$  evolved and the loss of mass by the resin increased up to a certain  $\text{H}_2\text{O}$  content and then decreased with increasing amounts of  $\text{H}_2\text{O}$  in the resin. Up to the maximum of 1/2



USSR

KISELEVA, YE. D., Et al., Zhurnal Fizicheskoy Khimii, Vol 44,  
No 2, Feb 70, pp 472-475

of  $\text{NMe}_3$  evolution, radiation-chemical decomposition of the exchange groups took place by splitting of the  $\text{CH}_2 - \text{N}$  bond; while at a higher  $\text{H}_2\text{O}$  content intramolecular redistribution of energy occurred and electrons that were displaced along H-bonds of the nearest hydrate  $\text{H}_2\text{O}$  film were captured with the splitting off of a Me group or according to the scheme  $\text{NO}_3^- + e \rightarrow \text{NO}_2^-$ .

2/2

1/2 043 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--MECHANISM OF RADIATION ACTION ON THE CATION EXCHANGER KU-2 -U-

AUTHOR--(03)--KISELEVA, YE.D., CHMUTOV, K.V., KULIGINA, N.Y.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 476-81

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATION EXCHANGE RESIN, AIR, WATER, OXYGEN, CHEMICAL REACTION  
MECHANISM, RADIATION EFFECT/(U)KU2 CATION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/2173

STEP NO--UR/0076/70/044/002/0476/0481

CIRC ACCESSION NO--AP0125753

UNCLASSIFIED

2/2 043

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125753

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF H SUB2 O AND O FROM AIR AND VARIOUS IONS WAS STUDIED ON CHANGES IN THE ION EXCHANGING SULFO GROUPS DURING IRRADN. OF THE CATION EXCHANGER KU-2. THE RESIN WAS IRRADIATED IN THE FOLLOWING FORMS: H PRIME POSITIVE, FE PRIME3 POSITIVE, CE PRIME4 POSITIVE, AND CU PRIME2 POSITIVE. WHEN INCREASING THE DOSE OF THE IRRADN. FROM 0.62 TIMES 10 PRIME9 TO 2.1 TIMES 10 PRIME9 RAD, THE SPLITTING OF ION EXCHANGING GROUPS FROM THE DRY RESIN INCREASES, MASS AND THE SWELLING DECREASE. FOR THE KU-2 IN FE PRIME3 POSITIVE, CU PRIME2 POSITIVE, CE PRIME4 POSITIVE, AND NA PRIME POSITIVE FORMS, THE ION EXCHANGING CAPACITY IS DECREASED MORE THAN IN THE CASE OF THE H PRIME POSITIVE FORM. THE INFLUENCE OF H SUB2 O WAS STUDIED FOR 2 DOSES: 0.62 TIMES 10 PRIME23 AND 0.38 TIMES 10 PRIME33 EV PER G. THE YIELD OF H SUB2 SO SUB4 AND THE LOSS OF THE ION EXCHANGING CAPACITY OF THE MOIST KU-2 INCREASES UP TO A CERTAIN H SUB2 O CONC., AND REMAINS CONST. FOR HIGHER H SUB2 O CONCNS. ONLY THE H SUB2 O MOLECULES IN THE HYDRATION SHELL ADJACENT TO THE SORBENT ARE ABLE TO AFFECT THE CHANGES. A PORTION OF S IS CONVERTED TO A STATE WHERE IT IS NOT ABLE TO BE EXCHANGED.

FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

Oncology

USSR

UDC 616-006.4:615.28

KONOVALOVA, N. P., D'YACHKOVSKAYA, R. F., and KISELEVA, Ye. G., Order of Lenin  
Institute of Chemical Physics, Academy of Sciences USSR

"Toxicity and Antitumor Properties of a New Analogue of Thio-TEPA"

Leningrad, Voprosy Onkologii, Vol 19, No 1, 1973, pp 58-63

Abstract: Since a number of stable free radicals are known to have antitumor activity and relatively low toxicity, a paramagnetic analogue of thiophosphamide (PAT) was synthesized by the substitution of an iminoxyl radical for one of the ethylenimine groups on thio-TEPA. Comparison of the toxic effects of PAT and thio-TEPA and their therapeutic effectiveness showed that the former offered a number of advantages over the latter. Studies with rat erythromyelosis showed that when equimolar quantities of PAT (5 mg/kg) and thio-TEPA (2 mg/kg) were injected 3 days after tumor transplantation, both sets of animals showed a tumor regression constant of  $0.21 \text{ day}^{-1}$ . However, if the preparations were administered on the 8th post-transplant day and continued for 10 days, PAT evoked an immediately apparent tumor regression with a constant of  $0.15 \text{ day}^{-1}$ , while in animals treated with thio-TEPA the tumors continued to grow for a couple of days before regression set in with a constant of  $0.11 \text{ day}^{-1}$ . These

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USSR

KONOVALOVA, N. P., et al, Voprosy Onkologii, Vol 19, No 1, 1973, pp 58-63

differences in the rate constants were significant on the basis of regression analysis. The chemotherapeutic indexes of PAT and thio-TEPA for rat erythromyelosis, expressed as the ratio of  $LD_{20}$  to the dose required for complete tumor inhibition were, respectively, 6.0 and 2.0. PAT also showed greater effectiveness than thio-TEPA against various solid and ascitic tumors of rats and mice. PAT was also more effective than thio-TEPA in affecting division of Ehrlich ascites tumor cells in male and female random bred mice (e.g., in terms of decreasing the mitotic index, increasing the number of abnormal mitoses, and in altering the relationship among the mitotic stages).

2/2

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USSR

UDC 536.3:535.341

SURINOV, Yu. A., KISELEVA, Ye. S.

"Transfer of Radiation and Radiant Heat Exchange in a Cylindrical Chamber of Finite Length, Filled with an Absorbing Medium"

Izvestiya Akademii Nauk SSSR, Energetika i Transport, No 6, 1971, pp 105-115.

ABSTRACT: An application of an approximate analytic method for solving integral radiation equations to numerical calculation and investigation of local boundary and internal radiant heat exchange characteristics for a cylindrical chamber of finite length, filled with a moist, absorbing medium is presented. A simple, approximate, engineering method is suggested for determination of local and mean generalized angular radiation factors, based on the application of the theory of the mean and averaging of transmission factors and optical lengths. Using this method, distinguished by its physical clarity and simplicity, all the main optical-geometric and energetic characteristics of radiation are calculated at the boundary and internal points of the field of radiation. The new method is compared with existing approximate methods for calculation of multiple integrals. Both upper and lower estimates of the error of the method and results of calculation are presented.

1/1

Acc. Nr: **AP0034682**

Ref. Code: UR 0241

PRIMARY SOURCE: Meditsinskaya Radiologiya, 1970, Vol 15,  
Nr 1. pp. 13-19

PROCEDURES IN TELEGAMMATHERAPY OF MALIGNANT TUMOURS  
OF THE THYROID GLAND

~~Kiselev, V. S.~~

Summary

The nature of the primary tumour spread and the incidence of metastatic lesions of regional lymph nodes were studied in 178 patients to choose the most effective method of irradiation in telegammatherapy of malignant tumours of the thyroid gland. In 103 patients (58.2%) the newgrowth in the thyroid extended beyond the bounds of the organ infiltrating the ambient cellular tissue, median organs and vascular fasciculi of the neck. In 147 cases (82.6%) metastasing of cervical lymph nodes and of the antero-superior mediastinum was elixited. Metastases in paratracheal nodes of the neck and mediastinum were noted in 19.7% of cases. They were also evident in jugular nodes on the side of the primary tumour in 38.8% (57 cases), and on both sides of the neck in 49.4% (73 patients). Proceeding from these figures the author proposes various methods of radiation treatment with the use of figured fields and shielding blocks.

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REEL/FRAME

19711387

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Acc. Nr: **AP0034682**

Ref. Code: UR 0241

PRIMARY SOURCE: Meditsinskaya Radiologiya, 1970, Vol 15,  
Nr 1. pp. 13-19

PROCEDURES IN TELEGAMMATHERAPY OF MALIGNANT TUMOURS  
OF THE THYROID GLAND

Kiseleva, Ye. S.

Summary

The nature of the primary tumour spread and the incidence of metastatic lesions of regional lymph nodes were studied in 173 patients to choose the most effective method of irradiation in telegammatherapy of malignant tumours of the thyroid gland. In 103 patients (58.2%) the newgrowth in the thyroid extended beyond the bounds of the organ infiltrating the ambient cellular tissue, median organs and vascular fasciculi of the neck. In 147 cases (82.6%) metastasing of cervical lymph nodes and of the antero-superior mediastinum was elicited. Metastases in paratracheal nodes of the neck and mediastinum were noted in 19.7% of cases. They were also evident in jugular nodes on the side of the primary tumour in 38.8% (57 cases), and on both sides of the neck in 49.4% (73 patients). Proceeding from these figures the author proposes various methods of radiation treatment with the use of figured fields and shielding blocks.

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KISELEVA, YE V.

SPRS 69805  
6-73

# SECTION III

## III-1. OBTAINING AND STUDYING CERTAIN PROPERTIES OF SOLID SOLUTIONS OF THE INDIUM ARSENIDE AND GALLIUM ARSENIDE SYSTEM

Article by R. A. Saikharov, M. D. Khlystovskaya, N. Ye. Dmitriyeva, N. P. Chuvalova, Ye. V. Kiseleva, Ye. P. Kashchinskaya, Moscow: Novosibirsk, III Simpozium po Prirode Raza i Simozia Poluprovodnikov Krasnodar i Plesetsk, Russian, 12-17 June, 1972, p 25]

The solid solutions of the indium arsenide and gallium arsenide system are interesting and prospective semiconducting materials the basic characteristic parameters of which have intermediate values between the parameters of such important compounds as gallium arsenide and indium arsenide.

In the given paper a study was made of the problem of obtaining solid solutions of the indium arsenide and gallium arsenide system by different methods: zone growth, directional crystallization, pulling from a melt by the Czochralski method, crystallization from the gas phase. Comparative characteristics of the materials obtained by these methods are presented.

A study was made of some optical and electrophysical properties of solid solutions of the indium arsenide and gallium arsenide system in the entire range of compositions. The spectra of the optical transmission in the wave length range of 0.9-2.5 microns were measured for temperatures of 77 and 300°K. The curves were obtained for the spectral dependence of the absorption coefficient. A study was made of the dependence of the concentration of the charge carriers, mobility and width of the forbidden zone on the composition of the solid solution.

USSR

UDC 621.325.684

PASMANNIK, V. I., KISELEV-DMITRIYEV, M. V., and MEL'NIKOV, Yu. I.

"Multi-Gap Resonator for a Klystron Amplifier"

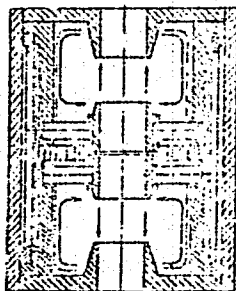
Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No. 33, 1971, pp 171-172

Abstract: The resonator, consisting of a casing with hoods and electron transit tubes joined to the casing by means of radial rods, operates in out-of-phase oscillation. The distinctive feature of the resonator is that the casing is formed of external and internal cylinders with ring gaps between their ends. This improves the operational stability of the device. For easing the resonator tuning, the middle transit tubes are divided into two equal parts connected with the corresponding internal cylinder. A cross-sectional diagram of the klystron resonator is shown.

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USSR

PASMANNIK, V. I., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, N° 33, 1971, pp 171-172



MULTI-GAP RESONATOR  
FOR KLYSTRON AMPLIFIER

2/2

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USSR

KISELEV-GUSEV, V. V., KOGNOVITSKIY, O. S.

"Rate of Information Transmission in Systems with Codes Localizing Errors"

Tr. Ucheb. In-tov Svyazi. M-vo Svyazi SSSR [Works of Teaching Institutes of Communications USSR Communications Ministry], 1972, No 59, pp 56-62 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V464 by the authors).

Translation: The effectiveness of the application of codes localizing errors in a system with waiting for decision signals is studied. Using the theory of Markov chains, a formula is produced for the rate of transmission of information in such systems. Quantitative estimates of the information transmission rate are presented when codes which localize errors are used.

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USSR

KISELEVSKIY, L. (Corresponding Member of Belorussian Academy of Sciences and Deputy Director of the Physics Institute of the Belorussian Academy of Sciences)

"Plasma and Its Use"

Minsk, Sovetskaya Belorussiya, 13 January 1973, p 4

Abstract: In recent years many scientific institutions in our country and abroad have been occupied with the problem of plasma. The scientists of the Physics Institute of the Belorussian Academy of Sciences have made a great contribution to the study of the properties of low-temperature plasma. This research was begun at the initiative and under the leadership of M. A. Yelya-shevich, Belorussian Academy of Sciences Academician and Lenin Prize winner. In the laboratories of the Physics Institute a number of original plasma installations were built, making it possible to obtain plasmas of various composition at temperatures of up to 100,000 degrees, to study the most important properties of plasma, and to refine optical and electronic methods of diagnostics (determining temperature, the density of electrons, and spectral optical characteristics). Special automatic and semiautomatic apparatus has been built for controlling the plasma mode. In particular, this has made it possible to improve the methods of the plasma treatment of metals.

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USSR

KISELEVSKIY, L., Sovetskaya Belorussiya, 13 January 1973, p 4

Under the leadership of V. D. Shimanovich, Senior Scientific Assistant and Candidate of Physicomathematical Sciences, joint work is being performed at present with the Minsk Motor Vehicle Plant on the introduction of methods for the plasma hardening of motor vehicle components. Research is being carried out in the same field on the process of the plasma cutting of metals. In the hands of research student V. G. Davydenko, the plasma "cutting tool" easily cuts sheets of stainless steel up to 50 millimeters thick. It has been found that the main shortcoming of plasma cutting -- irregularities of fusion welding -- can be eliminated by the skillful choice of operating mode for the plasma generator.

The actual mechanism of the interaction between plasma jets and solid bodies is interesting. Many unexpected results have also been obtained here. Thus, V. M. Snorko, a senior scientific assistant of the Institute and Candidate of Physicomathematical Sciences, has proved that pulsed plasma jets at a given temperature easily destroy metals but have virtually no noticeable effect on a sheet of writing paper. This property can be used in the local surface treatment of metals.

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USSR

KISELEVSKIY, L., Sovetskaya Belorussiya, 13 January 1973, p 4

In the laboratory of L. Ya. Minko, Candidate of Physicomathematical Sciences, one can see plasma jets produce radiation from a laser. A laser plasma-tron was built for the first time by laboratory assistants only two years ago, and the possibility of its use is already being widely discussed.

Interesting results have been obtained by A. G. Nepokoychitskiy in the Mogilev Department of the Physics Institute of the Belorussian Academy of Sciences. He has elaborated the principle of the plasma reduction of metals from oxides, which process could form the basis for a new method of making integrated electronic circuits.

Many more new properties of plasma no less promising in its use in science, technology, and manufacturing processes will undoubtedly be discovered. The first, useful acquaintance with plasma has taken place. The task is now to become more fully acquainted with it and to put it completely at the service of mankind.

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1/2 : 041

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--THE ROLE OF RADIANT FLUXES IN THE DESTRUCTION OF METALS BY HIGH  
VELOCITY PULSED JETS -U-  
AUTHOR--KISELEVSKIY, L.I., MOROZOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12. MAR. 1970, P. 406-410

DATE PUBLISHED----MAR70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--NITROCELLULOSE, PLASTIC COATING, METAL COATING, ABSORPTION  
SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1989/0643

STEP NO--UR/0368/70/012/000/0406/0410

GIRC ACCESSION NO--AP0107240

UNCLASSIFIED



Z/2 041

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107240

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL STUDY OF THE EFFECT OF A RADIANT FLUX<sup>1</sup> ON METALS COATED WITH A CELLOPHANE FILM. THE FILM IS NOT DESTROYED BY THE ACTION OF A SINGLE PULSE. IT ABSORBS RADIATION WITH A WAVELENGTH OF LESS THAN 2200 Å. THE SPECTRA OF THE SHOCK COMPRESSED REGION OF THE PLASMA, TAKEN THROUGH AN OPENING IN THE BARRIER, ARE OF CONTINUOUS NATURE IN THE VISIBLE AND ULTRAVIOLET RANGES.

ONLY LINES OF FIRST MULTIPLICITY IONS FIGURING IN THE TARGET COMPOSITION ARE RECORDED. RADIANT FLUXES CAUSE EROSION DESTRUCTION OF METALS. A DIFFERENCE BETWEEN THE DESTRUCTION OF POLISHED AND ETCHED SAMPLES IS OBSERVED. THE SIGNIFICANT ROLE OF RADIANT HEAT FLUXES IS CONFIRMED, AND THE POSSIBILITY OF STUDYING THE EFFECT OF RADIANT FLUXES WITH DENSITIES UP TO 10 TO THE 10TH W-SQ CM ON AREAS AMOUNTING TO SEVERAL SQUARE CENTIMETERS IS DEMONSTRATED.

UNCLASSIFIED

USSR

UDC:620.171.32

KISELEVSKIY, V. N., CHUPRINA, A. F., Kiev

"Experimental Determination of Characteristics of Damage to Heat-Resistant Alloys Upon Thermal Cycling"

Kiev, Problemy Prochnosti, No. 12, Dec 70, pp. 86-90

Abstract: Results are presented from an experimental study of the influence of thermal cycling on the accumulation of damage in heat-resistant materials. It is demonstrated that plastic deformation of a single-phase material leads to formation of additional microplastic deformations during thermal cycling in the area of high temperatures. Multiphase heat-resistant materials are inclined to increased damage during thermal cycling even without plastic deformation.

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1/1

- 83 -

Metrology, Surveying, Mapping, Graphics

USSR

UDC: 620.179.14

KISEL'GOF, E. Sh., KLIMOV, K. M., Scientific Research Institute of Internal Inspection

"Development of a Non-Contact Method of Production Monitoring the Hardness of Cold-Rolled Sheet Steel"

Sverdlovsk, Defektoskopiya, No 3, May/Jun 71, pp 5-10

Abstract: Research was done to find an optimum method of checking the hardness of sheet material in the form of a continuous band moving at a rate of 5 m/s with vibrations of the order of  $\pm 2$  mm and tension up to 100 kgf, in a temperature range of 10-40°C. The sheet was made of low carbon 08KP steel. Sheet production involved cold-rolling a 2-4 mm strip to a thickness of 0.20-0.36 mm in a band with a width of the order of 750 mm, recrystallization annealing in a bell furnace, dressing off (low compression rolling), and cutting the sheet into units measuring about 700 x 500 mm. The installation developed on the basis of this research utilizes the principal of magnetizing the sheet material in a dc field which changes the permeability of the material and thus gives an indi-

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USSR

KISEL'GOF, E. Sh., KLIMOV, K. M., Defektoskopiya, No 3, 1971, pp 5-10

cation of the hardness. The indicator must be set for each thickness. The device has a range of 30-70 HR30 units on the TKS-1 meter with an accuracy of  $\pm 4$  units. Five figures, one table, bibliography of two titles.

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USSR

UDC 621.165-253.4

KOVAL', G. S., KISEL'MAN, L. A., KUZNETSOV, B. D., and DON, E. A.

"Vibration State of Rotors of the K-300-240 KhTGZ Turbogenerator Set"

Chelyabinsk, V sb. "Osvoeniye blokov moshchnost'yu 300 MWt na Ekibastuzsk. ugle" (Collection of Works-Assimilation of 300 Mw Power Units Burning the Ekibastuz Region Coal), 1972, pp 99-104 (from Referativnyy Zhurnal-Teploenergetika, No 6, June 72, Abstract No 6C37)

Abstract: Work conducted at the present time for increasing the rigidity of the No 3, 4, 5. bearings of the K-300-240 KhTGZ turbo-generator set will make it possible to improve substantially its vibration state by eliminating the resonance vibrations at about service speed and the coincidence of critical speeds of turbine rotors. Ways of further reduction of rotor vibration are associated with

1/2

USSR

KOVAL', G.S., et al, Chelyabinsk, V sb. "Osvoyeniye blokov moshchnost'yu 300 MVt na Ekibastuzsk. ugle" 1972, pp 99-104 (from Referativnyy Zhurnal-Teplo-energetika, No 6, June 72, Abstract No 6C37)

quality rotor balancing at service speed to be performed at the plant and with improvement in generator rotor construction technology, in particular, in removing their thermal instability and unequal rigidity. Maintenance work on electric power stations must be accompanied by a thorough dynamic balancing of rotors on balancers of pendulum type. When designing the foundations and pipe system it is necessary to consider the importance of securing the minimum thermal expansion inequality of foundation columns, for the purpose of stabilizing loads on the turbogenerator bearings. 3 figures, 2 references.

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- 97 -

USSR

UDC 621.316.722.1 (088.8)

KISEL'MAN, M.A., TRUBINSKIY, A.V.

"Regulating Stage Of Multigrid Tube Stabilizer"

USSR Author's Certificate No 285996, filed 14 July 69, published 9 June 71  
(from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B456P)

Translation: The thyristor included in the screen grid circuit of a regulator stage of the stabilizer is controlled by a signal created at a resistor connected into the cathode circuit of the tube. When the tube current does not exceed a nominal magnitude, the thyristor blocks. When this current increases to an inadmissible value, the thyristor unblocks which is accompanied by a decrease to zero of the voltage at the screen grid and production of voltage at the resistor connected to the cathode circuit of the thyristor. The voltage drop at this resistor is applied to the control grid of the tube, which assures blocking of the tube without use of a supplementary power source. 1 ill. V.Sh.

1/1

USSR

UDC: 532.529

KISEL'NIKOV, V. N., LEBEDEV, V. Ya., ROMANOV, V. S., VYALKOV, V. V.,  
BARULIN, Ye. P. KOROSHKIN, V. A.

"Study of Distribution of Concentration of Solid Phase in a Horizontal Two-phase Flow"

Tr. Ivanov. Khim.-Tekhnol. In-ta [Works of Ivanovo Institute of Chemical Technology], 1972, No 13, pp 134-138 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12B998, by V. K. Starkov)

Translation: Results are presented from an experimental study of the distribution of concentrations of the solid phase both over cross sections and over the length of a horizontal pipe (pneumatic feed) for various products and various hydrodynamic modes of the two-phase flow. The distribution of the solid phase through the cross sections of the pneumatic feeder was determined by the method of sectors and by trapping of material with a special multi-level trap with subsequent weighing of the products collected in each level of the trap. The studies were performed using the following materials: spherical silica gel (d=3 mm), cylindrical silica gel (d=4 mm, h=4 mm), SG-1 resin (d=3 mm), granulated urea (d=1.5 mm and 2 mm), ammonium sulphate (d=1 mm). The air flow was varied between 39 and 52 m<sup>3</sup>/hr, material flow -- between 27 and 90 kg/hr. The

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USSR

Kisel'nikov, V. N., Lebedev, V. Ya., Romanov, V. S., Vyalkov, V. V.,  
Barulin, Ye. P., Korochkin, V. A., Tr. Ivanov. Khim.-Tekhnol. In-ta, 1972,  
No 13, pp 134-138.

experiments established that there is uneven distribution of concentrations  
both through the height of the cross section and along the length of the pipe  
and that this unevenness increases with increasing flow rate, size and density  
of particles. The corresponding graphs are presented. Six biblio. refs.

2/2

172 019 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ON SPECIAL FEATURES OF WIND REGIME IN THE CHARK VALLEY DURING  
WINTER PERIOD --U--  
AUTHOR--KISELNIKOVA, V.Z.

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 5, PP 59-66

DATE PUBLISHED--70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--ATMOSPHERIC WIND, MOUNTAIN, AIR FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/0088

STEP NO--UR/0050/70/000/005/0059/0066

CIRC ACCESSION NO--AP0132381

UNCLASSIFIED

2/2 019  
CIRC ACCESSION NO--AP0132381

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE WINTER WIND REGIME IN THE  
CHARSK VALLEY, LOCATED IN THE NORTHERN TRANSBAIKAL ARE IS STUDIED. THE  
STRUCTURE OF THE MOUNTAIN FLOW IN VARIOUS PARTS OF THE VALLEY IS  
DESCRIBED. GIDROMETEOROLOGICHESKIY N-1 TSENTR SSSR.

UNCLASSIFIED

USSR

UDC 621.316.722.1:546.28

KISETS, D.KH., SHUVALOV, B.A.

"Parametric Voltage Regulator With Control By Differential Resistance"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices In Electrical Communications Technology--Collection Of Works), No 5, Moscow, "Svyaz'," 1970, pp 216-224 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8B480)

Translation: This paper describes the circuit of a low-voltage regulator based on a silicon power transistor operating in a regime close to saturation. On the basis of an experimental investigation, it is shown that the introduction of feedback into the regulator circuit effectively makes it possible to regulate the voltage at the collector-emitter junction of a transistor operating from a current generator. 10 ill. 1 tab. 1 ref. Summary.

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--20NDV70  
TITLE--EXTRACTION AND PHOTOMETRIC DETERMINATION OF ANTIMONY IN  
SEMICONDUCTORS USING  
AUTHOR--(02)-KISH, P.P., ONISHCHENKO, YU.K.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 500-4  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS

TOPIC TAGS--SEMICONDUCTOR ALLOY, ANTIMONY CONTAINING ALLOY, TIN ALLOY,  
INDIUM ALLOY, GALLIUM ALLOY, GOLD ALLOY, BISMUTH ALLOY, METAL IMPURITY,  
METAL PHOTOMETRIC ANALYSIS, METAL CHEMICAL ANALYSIS

CENTRAL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0383

STEP NO--UR/0075/70/025/003/0500/0504

CIRC ACCESSION NO--AP0126138

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126138

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF THE SOLVENT NATURE AND THE ACIDITY OF THE MEDIUM ON THE EXTN. OF CHLORO COMPLEXES OF Sb(V), Au, Tl(III), Ga, Hg(II), AND SOME OTHER ELEMENTS WITH P,((1,4,DIMETHYL,1,2,4,TRIAZOLIN,3,YL)AZC),N,N,DIETHYLENILINE(I) WAS STUDIED. (SBCL SUB6) PRIME NEGATIVE FORMS A COMPLEX WITH I WITH MAX. ABSORBANCE AT 546-54 NM WHICH CAN BE EXTD. BY C SUB6 H SUB6, PHME, PHCL, CHCL SUB3, BUCL, AND SOME MIXED SOLVENTS. MOLAR ABSORPTIVITIES OF THE COMPLEXES RANGE 6.2 TIMES 10 PRIME4 MINUS 6.9 TIMES 10 PRIME4. PHCL EXTs. SELECTIVELY THE IONIC ASSOC. OF (SBCL SUB6) PRIME NEGATIVE WITH CATION OF I FROM 9-10N H SUB2 SO SUB4 AND MORE ACID MEDIA. A METHOD WAS DEVELOPED FOR THE EXTN. PHOTOMETRIC DETN. OF Sb IN SEMICONDUCTOR ALLOYS BASED ON SN, IN, Ga, Au, AND Bi. Hg, Tl(III), Au(III), Zn(II), Cd(II), Mn(II), Ni(II), Co (II), Cr(III), Al(III), Bi(III), Sn(IV), As(V), Te(VI) DO NOT INTERFERE; NEITHER DO 1000 FOLD IN(III) OR 50 FOLD Fe(III). FACILITY: UZHGOROD STATE UNIV., UZHGOROD, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EXTRACTION AND PHOTOMETRIC DETERMINATION OF THALLIUM USING VICTORIA  
BLUE 4R -U-  
AUTHOR--(02)-KISH, P.P., MONICH, YE.YE.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 272-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--CHEMICAL ANALYSIS, THALLIUM, PHOTOMETRIC ANALYSIS, ALKALI  
METAL/(U)4R BLUE VICTORA CHEMICAL REAGENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1994/1920 STEP NO--UR/0075/70/025/002/0272/0276  
CIRC ACCESSION NO--AP0115734  
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0115734

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TLCL SUB4 PRIME NEGATIVE FORMS A COLORED 1:1 COMPO. WITH VICTORIA BLUE 4R WHICH IS WELL EXT. BY C SUB6 H SUB6 AND ITS HOMOLOGS, BY CHCL SUB3, PHRR, ANISOLE, AND PROPYL BENZOATE FROM H SUB2 SO SUB4 SOLNS.; 95-98PERCENT OF THE COMPLEX IS EXT. BY A SINGLE EXTN. THE MOLAR ABSORPTIVITY OF THE TERNARY COMPLEX (C SUB6 H SUB6) IS 6.2 TIMES 10 PRIME4 AND 8.5 TIMES 10 PRIME4 AT 556 AND 608 NM, RESP. THE EFFECT OF THE AQ. PHASE ACIDITY, NAOL CONC., REAGENT CONC., RATIO OF PHASE VOL., AND CONTACT TIME ON THE EXT. OF THE TL COMPLEX WAS STUDIED. MAX. ABSORBANCE IS OBTAINED IN 6-9N H SUB2 SO SUB4, 10 PRIME NEGATIVE4 MU REAGENT CONC. WITH 40 SEC CONTACT TIME. BEER'S LAW IS OBEYED IN THE RANGE 0.1-10 MUG TL-ML. THE REAGENT WAS USED TO DET. TL IN METALLIC CD, COS, AND CDSO SUB4. LARGE AMTS. OF ALK. EARTHS, ALKALI METALS, MG(II), ZN(II), DC(II), CU(II), CO(II), MN(II), NI(II), AL(III), CR(III), FE(III), BI(III), PD(II), RH(III), W(VI), PB(II), 150 FOLD AMTS OF SN(IV), 140 FOLD AMTS. GA(III), 75 FOLD AS(III), 50 FOLD IN(III), 25 FOLD SB(III), MO(V), AND V(IV) DO NOT INTERFERE IN THE DETN. OF 20 MUG TL; AU(III), SB(V), HG(II), IR(III), PT(IV), I PRIME NEGATIVE, SCN PRIME NEGATIVE DO. THE SENSITIVITY OF THE DETN. IS 0.1 MUG TL-ML, AND THE ERROR IS PLUS OR MINUS 6.2PERCENT. FACILITY: UZHGOROD STATE UNIV., UZHGOROD, USSR.

UNCLASSIFIED



1/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--EXTRACTION AND PHOTOMETRIC DETERMINATION OF ZINC IN ERYTHROCYTES  
-U-  
AUTHOR--(03)-KISH, P.P., ZIMOMRYA, I.I., MIZUN, P.G.  
COUNTRY OF INFO--USSR  
SOURCE--LAB. DELO 1970, (3), 155-7  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--PHOTOMETRIC ANALYSIS, ZINC, ERYTHROCYTE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/0429

STEP NO--UR/9099/70/009/003/0155/0157

CIRC ACCESSION NO--AP0132654

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132654

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD IS BASED ON THE REACTION OF (ZNCNS SUB4)PRIME2 WITH I AT PH 3.5-8.0. THE BLUE COMPLEX FORMED WAS EXTD. WITH C SUB6 H SUB6-BU SUB3 PO SUB4 (28:1) AND THE ABSORBANCE DETD. AT 610 MMU. THE REAGENT IS STABLE IN THE PRESENCE OF ACIDS AND ITS WATER SOLN. CAN BE STORED FOR A LONGER TIME. BY USING I, ZN CAN BE DETD. DIRECTLY IN ERYTHROCYTES IN THE PRESENCE OF FE, MN, CO, NI, CU, CD, HG, AND CR; PRELIMINARY SEPN. IS NOT REQUIRED.  
FACILITY: UZHGOROD. UNIV., UZHGOROD, USSR.

UNCLASSIFIED

1/2 040 UNCLASSIFIED  
TITLE--"STEAM PIPE DEFECTOSCOPY" -U-

PROCESSING DATE--18SEP70

AUTHOR--(04)-VINOGRADOV, N.V., KISHINEVSKAYA, Z.M., KHASNASH, T.V.,  
SHVARTSMAN, V.YA.  
COUNTRY OF INFO--USSR

SOURCE--SVERDLOVSK, DEFECTOSKOPIYA, NO. 1, 1970, PP 8-10

DATE PUBLISHED-----70

SUBJECT AREAS--METHODS AND EQUIPMENT, ELECTRONICS AND ELECTRICAL ENGR.,  
MATERIALS  
TOPIC TAGS--NONDESTRUCTIVE TEST, ULTRASONIC INSPECTION, QUALITY  
CONTROL, AUTOMATIC CONTROL SYSTEM, TEST INSTRUMENTATION, METAL  
ROLLING, HOT WORKING, METAL PIPE/(U)VINT2 ULTRASONIC TEST INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1205/0133

STEP NO--UR/0301/70/003/001/0008/0010

CIRC ACCESSION NO--AP0100669

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100669

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DESCRIPTION OF THE VINT 2 DEFECTOSCOPE, DEVELOPED BY THE ALL UNION SCIENTIFIC RESEARCH INSTITUTE. THIS INSTRUMENT WAS DESIGNED FOR SEMI AUTOMATIC ULTRASONIC QUALITY CONTROL OF SEAMLESS HOT ROLLED PIPES 325-560 MM IN DIAMETER, A WALL THICKNESS OF 8-70 MM, AND A LENGTH OF 2.5-12.5 M. THE DEVICE PERMITS THE USE OF THE SAME ROLLER CONVEYORS WITHOUT RECONSTRUCTION, REQUIRES NO ADDITIONAL PRODUCTION SPACE, AND ELIMINATES THE DEFECTS CONNECTED WITH THE PREVIOUSLY USED MANUAL TUBE CONTROL SUCH AS SUBJECTIVE ESTIMATES OF CONTROL RESULTS, INABILITY OF THE OPERATOR TO CATCH DEFECTS, NO AUTOMATIC SIGNALING OF DEFECTS, ETC. THE DEVICE PERFORMS ITS CONTROL FUNCTION BY THE PULSE ECHO METHOD IN THE CONTACT VARIATION, WITH THE INDUSTRIAL WATER SUPPLY AS THE CONTACT FLUID. IT CONSISTS OF ELECTRONIC, MECHANICAL, AND SONIC SECTIONS, EACH OF WHICH IS EXPLAINED IN THE TEXT. THE TECHNICAL SPECIFICATIONS OF THE DEVICE ARE LISTED. IT IS ASSERTED THAT IT CAN ALSO BE USED FOR QUALITY CONTROL OF OTHER GRADES OF PIPE WITH ONLY SLIGHT STRUCTURAL CHANGES.

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137621

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VENOUS BLOOD SUGAR AND ETOH WERE STUDIED IN CADAVERS. MOST OF THEM HAD BEEN INTOXICATED WITH ETOH. IT WAS FOUND THAT DEATH CAUSED BY ACUTE CIRCULATORY COLLAPSE AND STRANGULATION PRODUCED AN INCREASE IN BLOOD SUGAR LEVEL TO ABOVE 200 MG PERCENT. IF INTOXICATION WITH ETOH WAS PRESENT, THIS INCREASED LEVEL WAS ABOLISHED. IT WAS CONCLUDED THAT THE DETN. OF BLOOD SUGAR MAY HELP IN EVALUATING THE CAUSE OF DEATH. FACILITY: KEMEROV. GOS. MED. INST., KEMEROVO, USSR.

UNCLASSIFIED

USSR

UDC: 669.187.25:621.365.2

LEYTES, A. V., MIRONOVA, N. A., KISIL', N. Ye.

"Influence of Contamination of Consumable Electrodes of Heat-Resistant Alloys with Nonmetallic Inclusions on Refining of Metal During Vacuum-Arc Remelting"

Moscow, Stal', No 2, 1973, pp 128-130

Abstract: Two typical industrial heat-resistant alloys (I: 6% Al and II: 4.5% Al and 2.5% Ti) are used in a study of the influence of the form and quantity of inclusions in the initial metal on the degree of their removal in VAR. The metal of the electrode remelted was cast by two methods -- in an atmosphere of argon and in an active atmosphere; in the second case, considerably more inclusions were formed, due to the appearance of groups (nitrides accompanied with oxide films) and larger accumulations (I, accumulations of Al nitrides; II, Al and Ti nitrides). VAR removes primarily accumulations of inclusions, while the content of fine individual inclusions is almost not changed. The inclusions which float upward form a slag layer on the liquid surface of the metal, contaminating the surface zone of the ingot; Al nitrides dissociate, causing ionization in the arc zone and disrupting the current flow mode. Ti nitrides do not dissociate.

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USSR

UDC 621.385.64

VERYASKIN, V.S., KISHINEVSKIY, L.I., TIKTIN, S.A.

"Continuous-Action Magnetron With Evaporative Cooling For Microwave Heating Units"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 7, pp 114-119 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A123)

Translation: The results are presented of the development of a continuous-action centimeter-band magnetron of average power for domestic and industrial microwave heating units. A distinctive characteristic of the magnetron developed is the evaporative cooling of the anode unit [blok], which has a number of advantages in comparison with other methods of cooling. As a boiling-water heat-transfer agent, it is possible to use both industrial water and water solutions of ethyleneglycol with a freezing point to minus 70° C.

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USSR

UDC: 532.72

KISHINEVSKIY, M. Kh., KORNIYENKO, T. S.

"Investigation of Mass Transfer From Rings on Rotating Discs Under Turbulent Flow Conditions"

V sb. Teplo- i massoperenos (Heat- and Mass-Transfer--collection of works), T. 1, Minsk, 1972, pp 62-66 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7E898)

Translation: A study is made of the rate of mass transfer of rings located on the surface of a rotating disc and coaxial with it under turbulent flow conditions. Experimental data are obtained during dissolution of benzoic acid, and by the electrochemical method. The Reynolds number was varied from  $10^5$  to  $1.2 \cdot 10^6$ ; the Schmidt number -- from  $3.7 \cdot 10^2$  to  $1.5 \cdot 10^4$ . For the theoretical description of the rate of mass transfer, use was made of equations describing matter transfer in a viscous sublayer at constant tangential friction stress on the wall. This assumption is justified for narrow rings. It is shown that the relation for the coefficient of mass transfer as a function of the distance to the leading edge of the ring is typified by three sections: an initial section where the coefficient of

1/2



USSR

KISHINEVSKIY, M. Kh., KORNIYENKO, T. S., Teplo- i massoperenos, T. 1, Minsk, 1972, pp 62-66

mass transfer depends on the distance to the leading edge; a section of a completely developed turbulent diffusion boundary layer; a transitional section. Formulas are given which describe the rate of mass transfer on each of the sections. V. Yu. Filinovskiy.

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1/2 044  
UNCLASSIFIED  
TITLE--MASS TRANSFER UNDER TURBULENT FLOW CONDITIONS TO A STATIONARY DISK  
ELECTRODE IN A VESSEL WITH MECHANICAL MIXING -U-  
AUTHOR-(03)-BARDIN, M.B., DIKUSAR, A.N., KISHINEVSKIY, M.KH.  
COUNTRY OF INFO--USSR  
SOURCE--ELEKTROKHIMIYA 1970, 6(2), 212-15  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--MASS TRANSFER, TURBULENT FLOW, PLATINUM ELECTRODE, OXIDATION  
REDUCTION REACTION, FERRICYANIDE, FERROCYANIDE, MATERIAL MIXING, NUSSELT  
NUMBER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1992/1056  
STEP NO--UR/0364/70/006/002/0212/0215  
CIRC ACCESSION NO--AP0112194  
UNCLASSIFIED

2/2 044

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112194

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MASS TRANSFER OF THE REDOX SYSTEM,  $Fe(CN)_6^{4-}$  SUB6 PRIMEE NEGATIVE, UNDER TURBULENT FLOW CONDITIONS WAS STUDIED IN ALK. SOLN. AT A SMALL (0.075 CM PRIME2) STATIONARY PT DISK BY VOLTAMMETRIC CURVES FROM 0 TO 0.5 V (100 MV-MIN). THE  $Fe(CN)_6^{4-}$  SUB6 PRIME3 NEGATIVE CONCN. VARIED BETWEEN 4 TIMES  $10^{-3}$  PRIME NEGATIVE3 TO 2 TIMES  $10^{-2}$  PRIME NEGATIVE2 M, KOH CONCN. VARIED 2 TO 6N, TEMP. VARIED 5 TO 45DEGREES, AND THE ROTATION OF THE 2 BLADED MIXER, WHICH WAS LOCATED 41.5 MM ABOVE THE ELECTRODE, VARIED FROM 180 TO 2400 RPM. THE EXPTL. EVALUATED NUSSELT NO.,  $NU = 0.805 Re^{0.58} Sc^{0.26}$  WAS VALID FOR THESE CONDITIONS, WHERE  $NU$  EQUALS  $KD/D$ ,  $Re$  EQUALS  $MD/PRIME2-V$ ,  $Sc$  EQUALS  $V-D$ ,  $K$  IS THE MASS TRANSFER COEFF.,  $D$  THE CHARACTERISTIC LENGTH (MIXER DIAM.),  $M$  THE ROTATION RATE OF THE MIXER,  $V$  THE KINEMATIC VISCOSITY, AND  $D$  THE DIFFUSION COEFF. FACILITY: KISHINEV. GOS, UNIV., KISHINEV, USSR.

UNCLASSIFIED

Instruments and Measurements

USSR

UDC: 621.316.92:621.314.6

K  
FIRSOVA, L. D., SOKOLOV, S. D., LUPYAN, A. G., KISHINEVSKY, R. N., KISELEV, N. M.,  
Design and Planning Office of the Main Administration of Electrification and  
Power Management of the Ministry of Ways of Communication

"A Device for Protection and Signalling the Breakdown of Diodes in a Semiconductor  
Rectifier Installation"

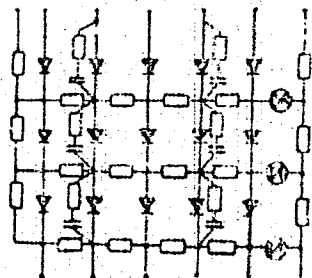
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6,  
1970, p 55, patent No 262248, filed 15 Apr 64

Abstract: This Author's Certificate introduces a device for protection and sig-  
nalling the breakdown of diodes in a semiconductor rectifier installation with  
diodes connected in series-parallel. The unit contains shunting resistors and  
signal elements such as light bulbs which act on photoresistors connected in the  
input circuits of protection and alarm. As a distinguishing feature of the  
patent, the operational reliability of the device is improved by connecting the  
signal elements between the common points of groups of parallel-connected diodes  
and shunting resistors.

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USSR

FIRSOVA, L. D., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, 1970, p 55, patent No 262248, filed 15 Apr 64



2/2

USSR

UDC: None

POZDNYAKOV, V. M. and KISHKIN, A. V.

"Aerophoto Device for Recording the Relative Bearing of the Sun"

Moscow, Otkrytiya. izobreteniya, promyshlennyye obraztsy. tovarnyye znaki, No 12, 1973, p 117, No 371431

Abstract: The distinguishing feature of this device is the construction of the hood, which is made in the form of plane-parallel glass plates. These are half-silvered and are placed in front of the objective at an angle to the objective's field of view. This arrangement simplifies the instrument's structure. A diagram of the system and the optical geometry it produces is shown.

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USSR

UDC: 669.018.26

KISHKIN, S. T., Academician, KLYPIN, A. A.

"Effects of Electric and Magnetic Action on Creep in Metals and Alloys"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 2, 1973, pp 325-327

Abstract: The authors discuss the results of research showing that electric and magnetic fields and also electric current actively influence the dislocation process of plastic deformation of both magnetic and nonmagnetic materials, indicating a universal law of interaction between external fields and the electromagnetic field of a crystal lattice in the region of plastic deformation. Experimental results show that creep is affected by magnetic fields of about 50 gauss, electric fields of less than 10 V/mm, and a current density through the specimen of 0.15 A/mm<sup>2</sup>. A table is given summarizing the creep rate for several metals and alloys before and after application of these three factors. Analysis of creep curves showed that plastic deformation is increased by magnetic and electric effects in the initial period and that the rate of uniform deformation increases as well. In many instances the time to fracture is shortened by these effects.

1/1

KISHKIN, S. T.

JPRS 510001  
16 May 72

UDC 699.245:669.018.4

DISTRIBUTION OF TRANSITION ELEMENTS FROM THE IV-VI AND VIIA GROUPS  
BETWEEN  $\gamma$ - AND  $\gamma'$ -PHASES OF HEAT-RESISTANT NICKEL ALLOYS

[Article by S. T. Kishkin, G. M. Kazlova, M. I. Lazhko, Moscow,  
Izvestiya Akademii Nauk SSSR, Metallurgiya, No 1, 1972,  
signed to press 10 August 1970, pp 170-176]

In the theory of heat-resistant and heatproof nickel alloys, of the greatest significance is the establishment of the distribution of the depositing elements between the basic phases: solid solution ( $\gamma$ ) and the strengthening intermetallic phases ( $\gamma'$ ) on a base of NiAl or Ni<sub>3</sub>(Al, Ti). Certain data on the region of uniformity of the phase of NiAl doped with individual transition elements have been obtained by using x-ray structural [1] and metallographic [2] methods of analysis. Direct determination of the composition of the  $\gamma$ - and  $\gamma'$ -phases of certain model nickel alloys has been done by the method of x-ray spectral local analysis [3]. In real nickel heat-resistant alloys, other than  $\gamma$ - and  $\gamma'$ -phases there exist, as a rule, carbide and boride phases, and by prolonged heating at high temperatures or under operational conditions certain intermetallic phases may be formed (the  $\eta$ - and  $\mu$ -phases, the Laves phases, etcetera), which may substantially influence the distribution between the  $\gamma$ - and the  $\gamma'$ -phases.

In the present paper we have investigated the  $\gamma$ - and  $\gamma'$ -phases in real heat-resistant alloys containing, in addition to the disperse particles of the  $\gamma'$ -phase, other phases as well.



USSR

UDC: 669.245:669.018.4

KISHKIN, S. T., KOZLOVA, M. N. and LASHKO, N. F., Moscow

"Distribution of Transition Elements of Groups IV-VI and VIII Between  $\gamma$ - and  $\gamma'$ -Phases of High-Temperature Nickel Alloys"

Moscow, Izvestiya Akademii nauk SSSR, Metally, No 1, Jan-Feb 72, pp 170-172

Abstract: In the theory of alloying high-temperature and refractory nickel-base alloys, primary importance is attached to determining the distribution of alloying elements between the principal phases: the solid nickel solution  $\gamma$  and the strengthening intermetallide phases  $\gamma'$ . This study deals with the composition of  $\gamma$ - and  $\gamma'$ -phases in real metastable high-temperature alloys containing, in addition to the disperse  $\gamma'$ -phase particles, also other phases ( $\sigma$ -,  $\mu$ - and Laves phases). The composition of the  $\text{Ni}_3\text{Al}$ -base  $\gamma'$ -phase in high-temperature nickel-chrome alloys is specific of each alloy. The Al:Ti ratio in the  $\gamma'$ -phase of these alloys is close to that in the alloy itself. The capacity of the elements of the transition groups to form the  $\gamma'$ -phase, determined from the ratio of their content in both  $\gamma$ - and  $\gamma'$ -phases, diminishes with the rising number of the group in the periodic system (with the exception of cobalt). Within the limits

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KISHKIN, S. T., et al, Izvestiya Akademii nauk SSSR, Metally, No 1, Jan-Feb 72, pp 170-172

of a given group the  $\gamma'$ -forming capacity of the elements increases with the period (V and VI groups). Substituting titanium for some of the aluminum reduces the element content of the VIa group in the  $\gamma'$ -phase and accordingly increases their content in the  $\gamma$ -phase. (3 tables, 9 bibliographic references).

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USSR

UDC 669.295:548.526

BOKSHTEYN, S. Z., KISHKIN, S. T., and MIRSKIY, L. M.

"Effect of Fine Structure Occurring in Titanium During the Polymorphic ( $\alpha \rightleftharpoons \beta$ ) Transformation on Diffusion Mobility"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 210-215

Abstract: Increased-purity titanium was used in the study (impurities: Fe-0.045%, H<sub>2</sub>-0.0044%, O<sub>2</sub>-0.188%, N<sub>2</sub>-0.0026%, and Si and C not detected). Test specimens made of titanium sheet were strips 10 x 20 x 1.8 mm in size. Heat treatment of the specimens was as follows: annealing for 1 hour at approximately the temperature at which the diffusion coefficient was determined in order to preclude change in grain size during diffusion. To obtain maximum defect density, the specimens were then annealed in vacuum in the alpha-state at 800° for 115 hr. Seven specimens were subjected to varying treatments: Pre-annealing and diffusion annealing at different temperatures, in which the temperature of polymorphic transformation was exceeded by a different number of degrees in most cases. Structural imperfections produced during the polymorphic ( $\alpha \rightleftharpoons \beta$ ) transformation can be the principal cause of accelerated diffusion in titanium. The defect state of the structure of the initial phase was inherited a new phase formed during the ( $\alpha \rightarrow \beta$ ) - transformation. It was shown that in a repeated transition of interfaces ( $\alpha \rightarrow \beta \rightarrow \alpha$ ), the diffusion coefficient of Sn<sup>113</sup> titanium increased by a factor of 11.5.

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USSR

BOKSETEYN, S.Z., et al, Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 210-215

Several investigations showed that the alpha-phase of titanium has an extremely defect-intense crystalline structure with high density of structural imperfections. When the beta phase is produced in the ( $\alpha \rightarrow \beta$ ) - transformation, it "inherits" the alpha-phase defects. In addition, new imperfections continue to be formed at temperatures somewhat higher than the critical temperature of the phase transition. This "heredity" is very stable and could not be eliminated by preannealing either at  $950^\circ$  or at  $1100^\circ$ . Analysis of electron-microscopic photographs of a thin foil with a transmitted beam, and study of x-ray deflection patterns showed that after the ( $\beta \rightarrow \alpha$ ) - transformation following quenching, the concentration of linear imperfections is very high. Thus, diffusional mobility is reduced. Preannealing at the premelting point ( $1550^\circ$ ) for 25 hours considerably reduces the density of defects and thus reduces the diffusion coefficient from  $9.1 \cdot 10^{-10}$  to  $0.24 \cdot 10^{-10} \text{ cm}^2 \cdot \text{sec}^{-1}$ , that is, by a factor of 38.

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USSR

UDC 669.245'26

KISHKIN, ST., POLYAK, E. V., and SOROKINA, L. P., Moscow

"Fine Structures of Ni-Cr-Based Alloys and Their Heat Resistance"

Moscow, Izvestiya Akademii Nauk SSSR, Metallurgiya, No 1, Jan 71, pp 142-143

Abstract: Some results of electron microscope studies of changes in the fine structure of heat-resistant alloys under conditions of simultaneous long-term application of high temperature (over 0.5 m. p.) and tensile stresses are described, as well as methods of stabilization of the structure. The studies were performed by the method of thin sections in transmitted light with specimens of type ZhS6KP and ZhS6K alloys. During the first stage of creep, dislocations split, forming subtraction and intrusion packing defects. This causes a decrease in the creep rate. During the second stage of creep, in connection with diffusion processes, disruption of the coherent bonding between the  $\gamma'$  and  $\gamma$  phases occurs, along with oriented coagulation of particles

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USSR

KISHKIN, S. T., et al., Izvestiya Akademii Nauk SSSR, Metally,  
No 1, Jan 71, pp 142-143

of the  $\gamma'$  phase and formation of networks of dislocations on the  
phase division boundary surface and in the solid solution. The  
addition of small amounts of magnesium and oxides of the rare earth  
elements causes stabilization of the structure and retards the move-  
ment of dislocations.

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USSR

UDC 669.715'721:620.186:669.018.8:669.018.8

KOL'TSOV, V. M., KISHMERESHKIN, I. G., GERSHTEYN, V. D., UST'YANTSEV, V. U.,  
and PAVLENKO, Z. A.

"Influence of Certain Technological Factors on the Structure and Properties  
of AMg6 Alloy Sheet"

Tekhnol. legkikh splavov. Nauchno-tekhn. byul. VILSa (Technology of Light  
Alloys. Scientific and Technical Bulletin of the All-Union Institute of  
Light Alloys), 1970, No 3, pp 20-23 (from RZh-Metallurgiya, No 12, Dec 70,  
Abstract No 12 1752 by I. NABATOVA)

Translation: An investigation was made of the structure, mechanical properties,  
and corrosion resistance of cold-rolled, 1-, 2- and 4-mm-thick AMg6 alloy sheet  
as a function of variations in chemical composition, degree of deformation  
(5-50%), and annealing regime in a range of 230-500°. Sheet properties were  
not significantly affected by variation in chemical composition (within the  
limits of the All-Union State Standard) or in heating rate (50, 100, and  
> 1000 deg/hr) or in cooling rate (25, 50 deg/hr and air cooling). The max-  
imum value of  $\sigma_{0.2}$ , viz., 20.5 kg/mm<sup>2</sup>, was obtained with a deformation degree  
of 30% and an annealing temperature of 280°. Heating at 100° for 100 hours  
in the event of prior annealing at temperatures > 300° causes the evolution  
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KOL'TSOV, V. M., et al. Tekhnol. legkikh splavov. Nauchno-tekhn. byul, VILSa (Technology of Light Alloys. Scientific and Technical Bulletin of the All-Union Institute of Light Alloys), 1970, No 3, pp 20-23 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1752 by I. NABATOVA)

of particles of the Al-Mg phase over the grain boundaries and a lessening of corrosion resistance of the sheet. The combination of high corrosion resistance and satisfactory mechanical properties of the sheet is assured at an annealing temperature of 280-300°. Five illustrations. One table.

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USSR

UDC: 669.295

IVANOV, V.A., KISHNEV, V.V., and LISOVSKIY, D.I.

"Investigation of a Commercial Process for Chlorination of Titanium Slags in a Melt by Electronic Modeling Methods"

Moscow, Tsvetnyye Metally, No 5, May 1970, pp 68-72

Abstract: Investigations were made of a commercial process for the chlorination of titanium slags in a melt with the help of an analog computer and equations expressing the reactions occurring during the chlorination process. To determine the parameters of the mathematical model of the chlorination process, dynamic characteristics obtained experimentally on the Kgt-5 commercial chlorinator were used. It was established that the mixing conditions of such components as  $TiO_2$ , C,  $SiO_2$ ,  $FeCl_2$ , and  $FeCl_3$  in each of the chlorinator capacities are close to the conditions in an ideal mixing reactor. In investigations on the kinetics of the process, all melt samples were taken in the center of the chlorinator, where  $TiO_2$  concentration equalled its average concentration throughout the entire melt. In continuous chlorination, the  $TiO_2$  content in the melt was lowered to 1.6-1.8%, causing intense frothing of the melt which was stopped by increasing the slag charge. It was recommended that to decrease the titanium loss, the charge should be loaded in the center of the chlorinator, thus eliminating drops in  $TiO_2$  concentration between chlorinator capacities and thereby lowering the value  $1/2$

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IVANOV, V.A., et al, Tsvetnyye Metally, No 5, May 1970, pp 68-72

of  $C_{\text{TiO}_2}^{\text{min}}$ . It was also established that owing to the intense mixing and high fusion level with  $\text{TiO}_2$  content in the melt up to 0.7%, passage of chlorine in waste gases is absent. The amount of titanium tetrachloride formed in the chlorination process per unit of time is determined primarily by the flow of chlorine fed into the chlorinator and practically does not depend on the change of current  $\text{TiO}_2$ , C,  $\text{FeCl}_2$  and  $\text{FeCl}_3$  concentrations in the melt, and also in changes of the melt temperature and dispersed structure of the initial slag and petroleum coke. As a result of the identification of the real process and its electronic model, the structure and parameters of various operators were determined. Analysis of some equations showed that the consumption of the chlorine-air mixture and, consequently, the yield of  $\text{TiCl}_4$  by the chlorinator, is limited not by the fusion level, but by the temperature in front of the bag filter in the condensation system. As a result of investigations on an analog computer, it was established that the mathematical model of the commercial process adequately reflects the basic features of the real process of titanium slag chlorination in a melt using a commercial chlorinator and, consequently, may be used for solving problems in automatic control.

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USSR

UDC 669:26.053.4(088.8)

POPIL'SKIY, M. Ya., KISIL', Yu. K., and DEMINA, L. R.

"Method of Making Calcium Chromate"

USSR Authors' Certificate No 305136, Cl. C 01 g 37/14, filed 13 Feb 70, published 14 Jul 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G212P by G. Svodtseva)

Translation of Abstract: The method of obtaining  $\text{CaCrO}_7$  from a solution of  $\text{Na}_2\text{Cr}_2\text{O}_7$ ,  $\text{Ca(OH)}_2$  and  $\text{CaCl}_2$  with subsequent separation of  $\text{CaCrO}_7$  from the mother liquor is unique in that, in order to decrease the content of harmful impurities in the product,  $\text{Na}_2\text{Cr}_2\text{O}_7$  is decomposed with  $\text{CaCl}_2$  at a temperature  $\leq 60^\circ$  with subsequent treatment of the resultant  $\text{CaCr}_2\text{O}_7$  with Ca hydroxide at  $\text{pH} \leq 6.5$ . In order to raise the Cr and Ca content of the intended product, the mother liquor is acidulated with  $\text{H}_2\text{SO}_4$ , HCl or chromic acid up to  $\text{pH} \leq 4.5$ , evaporated to partial precipitation of NaCl crystals, and returned to the  $\text{Na}_2\text{Cr}_2\text{O}_7$  decomposition stage. The method makes it possible to produce  $\text{CaCrO}_7$  with minimal impurity content: C 0.01%, S 0.04%, as well as to raise the Cr and Ca content of the product ( $\text{CrO}_3$  63.8%, CaO 34.8%).  
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USSR

UDC 541.67

YEGOROV, YU. P., KISILENKO, A. A., and SHOKOL, V. A., Institute of Organic Chemistry, Acad. Sc. UkrSSR, Kiyev

"IR-Spectra and Structure of Phosphorus Isocyanates"

Moscow, Zhurnal Strukturnoy Khimii, Vol 14, No 2, Mar-Apr 73, pp 240-245

Abstract: Continuing the studies of the Characteristics of chemical structure of phosphorus isocyanates, calculations have been carried out of the frequencies and forms of normal vibrations and the force field has been analyzed of a model molecule  $\text{Cl}_2\text{P}(\text{O})\text{NCO}$ , the results being correlated with the IR spectral shifts of the assymetric valence vibration frequency of the NCO group. An increase in the force constant of the P-N bond and the characteristics of the changes in the IR spectra of phosphorus isocyanates can be interpreted on the basis of the participation of higher orbitals of the phosphorus atom in bond formations.

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USSR

UDC 550.83:553.41

KISILEV, M. I., Ministry of Geology, RSFSR

"An Efficient Complex of Geophysical Methods in Prospecting and Reconnaissance for Gold-Ore Deposits"

Moscow, Razvedka i Okhrana Nedr, No 8, Aug 73, pp 31-36

Abstract: Generalized information is presented on an efficient complex of geophysical research procedures employed at various stages in the geologic study of the eastern gold-ore regions. Utilization of this complex will permit more reliable and unequivocal solution of the problems of identification of the promising areas and sections, will permit more exact ascertainment and follow-up of the ore zones, and will permit study of the profile on the basis of boreholes, as well as permitting the conduct of reconnaissance between boreholes and excavations. 1 table.

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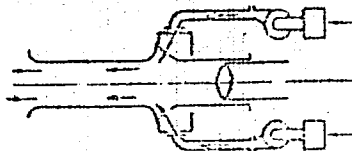
UDC: 621.316.6

SIL'VESTROV, V. M., NOVODEREZHNIKIN, V. P., TOMASHPOL'SKIY, N. F., DUBOVA,  
E. S., KISILEV, V. I.

"A Device for Protecting the Front Surface of Optical Systems"

Moscow, Gtkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 6, Feb 72, Author's Certificate No 328411, Division G, filed 20 Aug 69,  
published 2 Feb 72, p 143

Translation: This Author's Certificate introduces a device for protect-  
ing the front of optical systems from atmospheric contaminants. The device  
contains a fitting which mates with the mount of the optical system and  
has a joint for feeding in compressed gas. As a distinguishing feature  
of the patent, in order to preserve image quality, the unit for feeding  
in gas is made in the form of a gas-collecting chamber with guide chan-  
nels which goes into a blender nozzle.



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1/2 024 UNCLASSIFIED K PROCESSING DATE--18SEP70  
TITLE--INCREASE IN THE PHOTOELECTRIC SENSITIVITY OF POLYMERS WITH A  
CONJUGATION SYSTEM. I. PHOTSENSITIVITY OF A POLYMERLOW MOLECULAR  
AUTHOR--(05)-DRABKIN, I.A., TSARYUK, V.I., CHERKASHIN, M.I., CHAUSER, M.G.,  
KISILITSA, P.P.  
COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(1), 65-9

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CONJUGATED POLYMER, MOLECULAR WEIGHT, PLASTIC FILM,  
PHOTOSENSITIVITY, BENZENE DERIVATIVE, ACETYLENE, IODINATED ORGANIC  
COMPOUND, CHLORINATED ORGANIC COMPOUND, ORGANIC AZINE COMPOUND,  
PROTON

CONTROL MARKING--NO RESTRICTIONS

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CIRC ACCESSION NO--AP0100388

2/2 024

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100388

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF LOW MOL. WT. PHOTON ACCEPTORS (BROMANIL, CHLORANIL, TETRACYANOQUINODIMETHAN, TETRACYANOETHYLENE, TETRACYANOBENZENE, ALCL SUB3, OR PHTHALIC ANHYDRIDE) TO CONJUGATED POLYMERS (POLY(PHENYLACETYLENE), POLY(BETA IODOPHENYLACETYLENE), POLY(DIPHENYLBUTADIYNE), POLY(1 CHLOROCYCLOPENTENE), OR POLYAZINE) INCREASED THE PHOTO COND. (SIGMA) OF THE POLYMERS LESSTHANOREQUALTO10PRIME8 TIMES. THERE IS AN INCREASE OF SIGMA WITH THE POLYMER FILM THICKNESS, BUT NOT WITH INCREASED LAYER THICKNESS OF THE ACCEPTOR. THE MOST IMPORTANT FACTOR IN CHANGING SIGMA IS THE TYPE OF THE ACCEPTOR POLYMER INTERFACE. THE ADDN. OF THE ACCEPTORS ALSO INCREASES THE DARK COND. OF THE POLYMERS SLIGHTLY.

UNCLASSIFIED



Materials

USSR

UDC 666.11.01:539.3

DEMkina, L. I., Doctor of Sciences, KISIN, B. I.

"Elastic Properties of Glass as a Function of Chemical Composition"

Leningrad, Optiko-mekhanicheskaya promyshlennost', No 7, 1972, pp 39-44

Abstract: A study was made of the elastic properties of glass as a function of its chemical composition. Published data and the data from independent studies of the elastic properties of glass are used to demonstrate that the Young's modulus and the modulus of rigidity are not additive quantities, but the quantity which is the inverse of the velocities  $c'$  and  $c''$  of propagation of the longitudinal and transverse ultraviolet waves, that is, the times  $\tau' = 1/c'$  and  $\tau'' = 1/c''$  are additive;  $c'$  and  $c''$  are related to the moduli of elasticity by the following equations:

$$E = c'^2 d / g \text{ kg/mm}^2 \text{ and } G = c''^2 d / g \text{ kg/cm}^2$$

where  $d$  is the density of the glass,  $g$  is the gravitational acceleration.

Diagrams are presented which relate the density  $d$  of optical glass of different groups of compositions to the times  $\tau'$  and  $\tau''$  required for the longitudinal and transverse waves to travel 1 km in the glass. The experimental points corresponding to glass of the same composition lie on straight lines.

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USSR

DEMkina, L. I., Optiko-mekhanicheskaya promyshlennost', No 7, 1972, pp 39-44

A table is presented containing the values of  $\tau'$ ,  $\tau''$ ,  $\delta$  and  $E$  of the investigated glass, and a figure shows the increment  $\Delta\tau'$  and  $\Delta\tau''$  of the initial glass on introduction of 10 mole % of each of the oxides. The data indicate that  $Sb_{10}O_3$ ,  $PbO$  and  $K_2O$  invariably increase the values of  $\tau$ , and  $SiO_2$ ,  $B_2O_3$ ,  $Al_2O_3$  and  $CaO$  invariably lower these values.  $ZnO$  and  $Na_2O$  decreased the value of  $\tau$  of flint glass and increased  $\tau$  of crown glass. The constants  $\tau'_0$  and  $\tau''_0$  were found for the additiveness formula for 11 oxides in silicate glass with expression of their composition in volumetric percentages used to calculate the travel time of longitudinal and transverse ultraviolet waves in acid silicate glass; the values of these constants were higher for  $Sb_2O_3$ ,  $PbO$  and  $K_2O$  than for the majority of silicate glass, and for  $SiO_2$ ,  $CaO$ ,  $B_2O_3$  and  $Al_2O_3$ , lower. The Young's modulus, the modulus of shear and the Poisson coefficients were calculated. By the Young's modulus, the oxides can be arranged in the following descending series:  $(BO_4) \rightarrow CaO \rightarrow ZnO \rightarrow (AlO_4) \rightarrow BaO \rightarrow SiO_2 \rightarrow Na_2O \rightarrow Sb_2O_3 \rightarrow PbO \rightarrow K_2O$ .

USSR

UDC 669.715'782'243'74'721:669.018.2

KISIN, I. L., BUZAYEVA, I. N., KAUSHANSKIY, D. Ya., and FEDOROV, G. A.

"Modification of Aluminum-Silicon Alloy for the Production of Piston Alloy"

V sb. Modifitsir. siluminov (Modification of Silumins -- Collection of Works), Kiev, 1970, pp 158-159 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1748 by I. NABATOVA)

Translation: The authors developed and introduced a technology of modifying hypereutectic Silumin for pistons. An investigation was conducted on the alloy containing (in %) Si 17.0, Ni 1.1, Mn 0.66, Cu 1.87, Mg  $\leq$  0.3, Zn  $\leq$  0.3, Fe  $\leq$  1.0. Of the modifiers tried (PCl<sub>5</sub>, AlP, Cu<sub>3</sub>P), Cu<sub>3</sub>P was found technologically most effective, convenient in production, and economical. Modification raised the mechanical properties of the alloy (breaking point by  $\sim$ 5 kg/mm<sup>2</sup>) and the purity of the piston surface after machining, as well as reducing wear on the cutting tool. One illustration. Bibliography of one title.

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USSR

BYKOV, V. D., KISIN, I. M., and EDELSHTEYN, K. K.

"Conference on the Problem of Clean Water"

Moscow, Vestnik Moskovskogo Universiteta, Seriya 5, Geografiya, No 2, Mar/  
Apr 71, pp 117-118

Translation: On the 25th and 26th of December 1970, the All-Union Conference on "Scientific Fundamentals for the Control of Processes Affecting the Quality of Water and Water Bodies which are Main Sources of Water Supply" took place at the Department of Geography of MGU [Moscow State University]. The problem of providing the population and the national economy with clean, fresh water becomes at present one of the most urgent problems. Irregularity in the distribution of water resources over the country's territory and, at the same time, the population increase in industrial centers and the sharp increase in industrial production enhancing pollution of the surface waters with public and industrial wastes -- all this requires control of the water resources of the country in a quantitative and qualitative way. The most widespread method of sewage water control is the creation of artificial bodies of water -- water reservoirs. The processes taking place in the reservoirs essentially

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